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FENDLER'S FERNS OF TRINIDAD.—Sets ranging from 25 species to 68, supplementary to the sets distributed in 1878, are now for sale at New Haven A few sets of the first distribution are still to be had. The additional numbers and names are appended.

D. C. EATON.

12. Asplenium pumilum, Swartz
38. Polypodium decumanum, Willd.
39. Asplenium cicutarium, Swartz.
44. Polypodium piloselloides, L.
49. Alsophila blechnoides, Hook.
50. Polypodium lycopodioides, L., var. salicifolium, Hook. & Baker.
56. Selaginella ciliauricula, Spring.
59. Acrostichum (Olfersia) cervinum, L.
64. Trichomanes membranaceum. L.
65 Aspidium conterminum, Willd., var. strigosum, Eaton. (Aspidium strigosum, Fee).
67. Pteris aculeata, Swz.
72. Lycopodium cernuum, L.
83. Polypodium loriceum, L.
85. Polypodium chnoodes, Sprengel.
87. Trichomanes crispum, L.
88. Meniscium reticulatum, L.
90. Polypodium fraxinifolium, Jacq.
91. Trichomanes rigidum, Swz.
92. Trichomanes spicatum, Hedw.
94 Polypodium piloselloides, var. moniliforme, Hook.
96. Asplenium salicifolium, L., Hooker.
96B. Asplenium auriculatum, Swz.
97. Aspidium Imrayanum, Fee. (Nephrodium Imrayanum, Hook., referred to Polypodium (Phegopteris) flavopunctatum by Baker, but these specimens have a well developed indusium).
99. Asplenium serratum, L.
100. Hymenophyllum polyanthos, Swz.
101. Acrostichum nicotianifolium, Swz.
102. Hemitelia multiflora, R. Br.
103. Polypodium crassifolium, L.
105. Acrostichum (Polybotrya) caudatum, Hook.
106. Acrostichum (Stenochlæna) sorbifolium, L., var. Yapurense. (Acrostichum Yapurense, Martius.)
107. Lycopodium Aqualupianum, Spring.

112. Alsophila nitens, J. Smith. Pinnæ somewhat less scaly beneath than in No. 32.
115. Vittaria lineata, Swz.
116. Tœnitis angustifolia, R. Br.
117. Polypodium Phyllitidis, L.
118. Aspidium plantagineum, Griseb.
121. Acrostichum sorbifolium, L. The typical form, very nearly.
122. Acrostichum (Chrysodium) aureum, L.
124. Acrostichum Lingua, Raddi.
125. Aspidium falciculatum, Raddi.
126. Acrostichum luridum, Fee.
129. Danæa nodosa, Smith.
130. Asplenium marginatum, L.
131. Polypodium jubæforme, Kaulf.
132. Gymnogramme pumila. Anton Sprengel.
133. Blechnum serrulatum, Richard.
134. Trichomanes Bancroftii, H. & G.
135. Schizæa pennula, Swz.
136. Tœnitis furcata, Willd
137. Hemionitis citrifolia, Hook.
138. Schizæa elegans, Swx.
139. Asplenium obtusifolium, L.
140. Asplenium rhizophorum, L.
141. Asplenium celtidifolium, Mett.
142. Alsophila sagittifolia, Hook.
143. Trichomanes pyxidiferum, L. (Tr. Brasiliense, Grisebach).
145. Trichomanes muscoides, H. & G.
146. Selaginella flabellata, Spring.
147. Danæa alata, Smith.
148. Hypolepis repens, Presl.
149. Pteris gigantea, Willd.
151. Antrophyum Cayennense, Kaulf.
151B. Antrophyum subsessile, Kunze.
153. Acrostichum Lingua, Raddi.
154. Aspidium cicutarium, Swz.

18, of the first distribution, is Aspidium invisum, Swartz, rather than A. patens, to which it was referred in the former list.

22. is nearest to Aspidium Sprengelii, Kaulf, and may perhaps safely be referred to that species.

23. Hypoderris Brownii, J. Smith, and not Phegopteris dracontoptera, to which it bears a close general resemblance.

80. Cyathea Schauschin, Martius. Mr. Fendler has sent a fine caudex of this plant, which completes the proof of its identity with a species now known to be widely distributed in tropical America.

TWO UNDESCRIBED NORTH AMERICAN SPECIES OF SEPTORIA, BY F. DE THUEMEN.—SEPTORIA ALBANIENSIS THUEM. in *Mycotheca universalis* No. 1294.—S. maculis in folii pagina superiore irregularibus,

saepe confluentibus, magnitudine varie, subarescentibus, ochraceis, subconcolori vel fusco marginatis, in pagina inferiore e contrario indeterminatis, ochro-griseis, obscuriore cinctis; peritheciis hypophyllis, sparsis, minutis, punctiformi-sublenticularibus, atris, pertusis; sporis bacillaribus vel cylindraceis, utrinque subrotundatis, curvulatis, uni septatis, hyalinis, 30–32 mm. long., 2.5 mm. crass.—A *Septoria salicicola Sacc.* in Michelia I. p. 171. (*Depazea salicicola Fr.*) cum sporis 40–50 mm. long., 3 mm. crass., triseptatis et *Septoria Populi Desm.* cum sporis 45 mm. long., 3 mm. crass., sporarum magnitudine et ab prima septatione longe diversa.

Albany, New York, ad *Salicis lucidæ Muhl.* folia viva. Aug. 1878. Leg. Ch. H. Peck

SEPTORIA QUERCETI THUEM.—S. peritheciis hypophyllis, numerosissimis, densissime gregariis, minutis, nitido-atris, immersis, epidermide pustulæformi tectis postremo vix liberis, punctiformibus, maculas plus minusve suborbiculatas, translucentes efficiens; sporis numerosis, subrectis vel arcuatulis, cylindraceis, utrinque obtusatis, bi-quadriseptatis, multinucleatis, hyalinis, 18–22 mm. long., 2.5–3 mm. crass.

Aiken, Carolina australis, ad *Quercus tinctoriæ Willd.* folia subviva vel arida. No. 2227. Leg. H. W. Ravenel.

QUERCUS LEANA, NUTT.—In an article on the "Oaks of the Potomac side" which I contributed to *Field and Forest* for October and November, 1865, occurs the following remark: "Two trees which I have recently discovered in a wood near the northwestern (northern) corner of the District of Columbia, have proved unusually interesting. That these should be called *Quercus Leana* and not *Q heterophylla* I maintain for the following reasons: Their resemblance to *Q heterophylla* as it exists in the herbarium of the Department of Agriculture is not sufficiently close to warrant this name, the leaves being broader and less lobed They *do* agree substantially with the specimens of *Q. Leana* in that herbarium. They also agree remarkably well with the tree which Mr. W. R. Smith, Superintendent of the U. S Botanical Garden has raised in his grounds from an acorn of *Q. imbricaria.* Finally, on considering the locality in which these trees were found, it seems impossible to believe that *Q. Phellos* can have entered into the combination. In the entire wood where they are situated not an individual of that species exists. It is wholly wanting throughout the region of Rock Creek on which the grove is located. On the contrary the prevailing oak there is *Q. imbricaria,* although both varieties of *Q. coccinea* are also frequent. It cannot therefore be justly claimed that this new discovery constitutes a revival of the famous Bartram's Oak since this was decided on the highest authority to be either a form of *Q. Phellos* or a union of that species with *Q. coccinea* var. *tinctoria.* It is, however, none the less a botanical curiosity."

Since the above was published I have re-visited the locality no less than five times and have succeeded in obtaining an abundance both of fruiting and flowering specimens, of which I may say, *en passant,* I have a supply for distribution and exchange. My latest visit was

made a few days ago, this time in company with Dr. George Vasey, Botanist of the Department of Agriculture. As there has been of late a perhaps somewhat healthy reaction against the hybrid theory, doubtless too often invoked in explanation of aberrant and intermediate forms, I will briefly describe our conjoint observations upon the oaks in the vicinity of the trees to which reference has already been made. Our problem was if possible to satisfy ourselves whether these oaks were really hybrids and if so what species were to be regarded as their putative parents.

It should be premised that on both these trees (which I am now satisfied proceed from a single root, although separate at the base) the lower leaves differ widely from the upper ones, the former being much larger and either entire and oblong or only slightly lobed or angled at the apex, thin and green both sides. I had frequently met in that locality with trees bearing none but these large, thin, smooth, oblong leaves which I had attributed to the effect of shade upon the true *Q. imbricaria*. At no great distance from these trees were found specimens of *Q. imbricaria*, *Q. coccinea* and *Q. palustris*. A little way off we came upon a spot where there stood a large and typical tree of each of these species, the three trees forming a regular triangle, and just in the the center of this triangular space there grew what appeared to be another double tree somewhat smaller than that which I have so often visited. I had frequently seen these before and observed that they bore the large and thin, smooth leaves with the outline of those of *Q. imbricaria*. We now observed that the larger of the two trunks bore leaves resembling the lower leaves of our *Q. Leana*, i. e. mostly lobed or angled at the end. On looking carefully up into the tops of these trees manifest signs of lobation were visible in the leaves even of the smaller trunk. This was, however, confined to the apex and often amounted to nothing more than an irregular obtruncation. On the larger trunk the leaves were very decidedly lobed among the upper branches quite clearly approaching those on the fruiting branches of the typical *Q. Leana*. As neither of these trunks had as yet commenced bearing fruit it seems very probable, as Dr. Vasey remarked, that at their maturity the leaves of these trees will assume the normal form of the hybrid.

The fact that *Q. palustris*, which was present, belongs to so distinct a group of oaks, with the shallow cup, seems to be tolerably conclusive against this hybrid having sprung from the union of that species with *Q. imbricaria*, and the only remaining explanation makes these trees a cross between the last named species and *Q. coccinea*, which was the conclusion at which I arrived on first discovering the other pair, and which is expressed in the paragraph quoted at the outset.

Recurring now to the question whether these trees are really hybrids or not, it seems as if no rational mind, brought into actual contact with the facts as they presented themselves in their plain, straightforward way, could resist the conviction that the pollen from a lobed-leaved form had fertilized the stigmas of the entire leaved form, or

vice versa, and that these variable, intermediate, and unstable states had sprung from acorns thus crossed. And this is the consideration which I wished specially to emphasize. It is often and truly said that persons unfamiliar with any special branch of natural science are incapable of appreciating the nature and force of scientific convictions. This would be pre eminently true in this case. Standing in the presence of these forest denizens, I felt that they were speaking to me and revealing to me the secret of their conception, birth and life, in a language more potent and convincing than any words or voice could make it.—LESTER F. WARD.

TIMBER LINE IN THE SAWATCH RANGE.—That part of the main range of the Rocky Mountains known as the Sawatch Range has a general north and south direction with spurs running east and west between which the different streams find their way into the Arkansas or Gunnison Rivers.

The direction of the spurs and range is important, as by it the height of the tree line is in great part determined.

Timber line is generally at an altitude of nearly 12,000 feet above sea level, but in some localities may be lower than 11,000 feet. *Picea Engelmanni* forms the great mass of the forest at high altitudes, sometimes *Pinus aristata* is quite plenty and in some places there are a few trees of *Pinus flexilis* and rarely the Aspen comes to be a member of the high alpine woods.

Close to timber line are found the largest trees and most magnificent forests of Engelmann's Spruce and there is not the gradual decrease of size and vigor that the cold of an arctic climate should cause.

A few steps and one passes from a dense forest to a treeless region extending to the summits.

Engelmann's Spruce will not grow on the rocky slides so common in the Rocky Mountains, nor in a very wet location, but an excess of moisture does not influence the altitude of timber line.

Most of the summits of the very high peaks, such as Antero, Ouray and Princeton, are nearly clean rock, surrounded by "slides," and their tree line is determined by conditions of soil; and many of the lesser peaks also have an apparent tree limit caused only by rocky summits.

The scattered trees finding a foot hold on the steep sides of such peaks, not having the protection against the elements, that in a forest one tree gives to another do not grow at as high an altitude as the soil would permit. The main agents in preventing the forest from crossing the "divides" are the snow and wind.

Some idea of the power of snow at high altitudes may be imagined by noticing the paths of the "snow slides," or avalanches, swept clean of trees from the summit to the base. At one place near Mt. Antero, where an avalanche had come down, the trees from the mountain side were piled up twenty feet high for a distance of five hundred feet. Near tree line, where there has been no downward

movement of large masses of snow, I have seen trees six feet high torn up by the drifts. Large drifts are generally formed near the summits of steep banks about timber line and easily prevent trees obtaining a foot hold upon the steeper slopes. If such a slope at its summit has a comparatively level area protected by a higher summit some distance beyond, there will be a sort of double timber line, one at the foot of the bank and one some distance beyond its summit, but the upper one is formed by trees, almost prostrate, bent and twisted downward and distorted into all manner of shapes by the weight of the snow. They owe their existence to the nearly level habitat which prevents them from being torn up by a downward motion of the snow. Without a higher protecting ridge this second timber line would be impossible on account of the winds which would keep the summit clear of trees.

The prevailing winds are from the west from which direction the snow is drifting almost continuously throughout the winter. On almost any clear winter day the banners and streamers of snow can be seen coming from the summits. In consequence of the prevalence of western winds, the largest drifts are on the eastern slope and on the eastern slopes of north and south spurs and timber line is higher on western slopes. This is plainly seen upon the smaller spurs having a north and south direction. If the soil and slope are the same upon both sides, the tree line will round the spur from the western exposure and fall on reaching the eastern slope five or more hundred feet. The wind storms are most violent on the high ridges and divides and prevents the growth of trees in such places, but their direct destructive influence reaches only two or three hundred feet each side of the summit and a lower limit to the forest is due to the drifting snow. Sometimes but rarely a line of prostrate trees between wind and snow can be found, just over the summit out of reach of the wind and not far enough down the slope to enable the drift to obtain a hold and uproot them. *Picea Engelmanni* does not record in its growth the direction of the wind as *Pinus aristata* sometimes does in exposed situations when the twisted and turned branches plainly show that the prevailing winds are from the west. The limit of trees being determined by the winds and the snows drifting about the summits, then timber line depends very much upon the height of the dividing ridge and the higher the mountain the higher the tree line, other conditions being the same.

Timber line reaches its highest altitude where there is a large area of high elevation extending long distances from dividing ridges. —T. S. BRANDEGEE.

NOTES ON SOME CALIFORNIAN PLANTS.—A residence of a year and a half in the Southern part of California, principally in the neighborhood of Los Angeles, has enabled me to study and collect the plants of that region, and I propose giving the readers of the GAZETTE some account of a few of the most interesting features of the vegetation of that locality. I shall select for my purpose only the more

remarkable and interesting forms of vegetable life, and those which are not known to the east of the mountains.

Eschscholtzia Californica, Cham., the Californian Poppy, is one of the commonest plants in some localities. Where it grows in large patches, as it very frequently does, the blossoms make the ground appear of a most intense golden color, and when the sun is shining brightly upon them, the eye is dazzled by the blaze It is a very variable species, and its synonomy as given in "Watson's Index" is very large. It does not seem to occur at all east of the Wasatch mountains, but is very common in California, especially in the neighborhood of Los Angeles.

Platystemon Californicum, Benth. A species peculiar to California, and commonly known as Cream Cups, from the color and shape of the flowers. These are quite large, at the top of naked hairy peduncles. The leaves are all linear and mostly radical. It is very common near Los Angeles.

Thysanocarpus curvipes, Hook Remarkable for the curious pods which terminate the slender, drooping pedicels. The flowers are small, white and inconspicuous. One of the forms has the wing of the orbicular pod perforated, and it is, therefore, known as the Lace pod. It grows on rocky banks and in dry soil

Isomeris arborea, Nutt. This is another strictly western plant. It is a tall half woody shrub, with three parted leaves, clusters of yellow flowers, and inflated bladdery pods. It belongs to the *Capparidaceæ* and is quite common near San Diego, and on the Colorado desert.

Sidalcea malvaeflora, Gray. Found as far east as Colorado. It grows tall and slender; long petioled, crenate, heart shaped leaves, and flowers large, bright purple, and arranged in a loose raceme.

Erodium moschatum, L'Her., and *E. cicutarium*, L'Her. The former of these two species is the more common, and is of a larger and more vigorous growth than the latter. The seeds are the most remarkable feature of the plant, and these I have described in the GAZETTE for September, 1879. The common name of Pin Clover is given from the seeds.

Schinus Molle, Linn. The Pepper Tree. This is one of the shade trees of Southern California, and is one of the prettiest of trees. The flowers are small, greenish white in long racemes. The fruit is globular, of a deep red color, and hangs in long bunches, contrasting beautifully with the pinnate leaves. It is hot and peppery to the taste, and in Mexico, where the tree is native, it is known as Chili pepper. From the broken leaves and branches exudes a white gummy substance, which is also peppery. Generally not very tall, it branches some eight or ten feet from the ground. The bark is rough and scaly, but the long pendulous branches and pinnate leaves are handsome. Blossoms twice a year, and is an evergreen, the branches never being bare of leaves. It is extensively planted in Southern California, but the climate of San Francisco is not very suitable for its full development.

Rhus diversiloba, Torr. and Gr. is the Poison Ivy or Oak of Cali-

fornia, and is very similar in appearance to the Rhus Toxicodendron, L., and seems to be even more poisonous. It is either an erect or climbing shrub, with three parted crenate leaves, and small clusters of greenish flowers. A preparation of *Grindelia robusta*, seems to be efficacious in curing the poison. Another species, *R. aromatica*, Ait. is sometimes mistaken for *R. diversiloba*, and is said to effect some people in the same way.

Lupinus rivularis, Dougl. This is one of the handsomest of all the Lupines. Tall and stout in habit, it has large, long petioled leaves, smooth and bright green. A dense spike or raceme of bright blue flowers is at the summit, and it adorns in profusion the zanjas or ditches near Los Angeles.

Medicago sativa, L. The Alfalfa or Lucerne of the farmers This has been introduced from Australia, and forms one of the most valuable pasture plants of California. It grows very rapidly and is often cut four and six times in a season. Once planted and well rooted a field is said to last for 30 years. The roots penetrate so deeply into the soil that they find sufficient moisture for their nourishment without irrigation *M. denticulata*, Willd., is the Bur or Sheep Clover. It has small yellow flowers, but its chief value is in the burs which afford good nourishment for sheep when all other feed has disappeared from the ground.

Adenostoma fasciculatum, Hook and Arn. This is the celebrated greasewood we are told so much about and which forms nine-tenths of the vegetation in many parts of the mountains. It is a bushy shrub with awl shaped leaves, and close clusters of white flowers. The roots are extensively used for fuel, and its presence on land is a sure indication of water at no great depth.

Heteromeles arbutifolia, Roem. A very pretty small tree, with crenate coriaceous, bright green leaves, and clusters of white flowers. In the fall the red berries hang on the tree in great profusion, forming large bunches and looking in the distance like apples.

Saxifraga Parryi, Gray, is strictly a Californian species, and is a very pretty one. It springs from a bulb, and the short stalk has hairy radical leaves, and is surmounted by a small cluster of white flowers. It grows in profusion in dry rocky sod near San Diego.

Jussiæa repens, var. *Californica*, Wats. I mention this plant to say that I found it growing in San Juan Canon in the water from some hot sulphur springs. The plants were growing in water which was uncomfortably hot to the hand. Again I have seen them growing in the mud on the Los Angeles River.

Godetia Bottae, Spach. This is a fine species of the genus and has very large, handsome purple flowers. It is peculiarly a western form and is very common in good soil near Los Angeles.

Megarrhiza Californica, Torr., is a close relative of *Echinocystis lobata*, Torr, and Gray, and has much the same habit of growth. It climbs over brushes and shrubs and its long racemes of white flowers, or the large spring fruit look very pretty in the bushes. The

fruit always opens at the top, and as this hangs down, the seeds drop out as soon as ripe. The tendrils are long and sensitive.

The *Umbelliferae* and *Compositæ* are very well represented in California, but not having yet determined many of them I leave them for another time.

Arctostaphylos glauca, Lindl., is the Manzanita of the mountains. Generally speaking it is a small tree or shrub, with very crooked branches. The wood is very hard and tough, and of a deep red color. The flowers are of a rose white, and in open racemes with very sticky pedicels, and the leaves are thick and coriaceous It grows plentifully in some places in the mountains.

Styrax Californica, Torr. This is a small tree with rough crooked limbs, white bell shaped pendulous flowers, and tomentose leaves. It belongs to a genus which has but few representatives in the United States, and which is by no means common. Its favorite locality is on the sides of the mountains, in the damp canons, and even here it is not plentiful

Gilia Californica, Benth This is one of the commonest species of this extensive genus. It forms a small bush growing on the mountain side. The leaves are awl shaped, and sharp pointed, while the flowers are quite large, funnel shaped, and of a lilac or purple color. It is one of the best marked, and most peculiar of all the species of *Gilia*.

Gilia intertexta, Steud., has small white flowers, and grows spread out like a mat on the ground, the leaves being bipinnate.

Gilia multicaulis, Benth., with the var. *tenera*, Gray, is very common in California. The stem is simple and low, with a few finely dissected leaves at the base, and a bunch of violet flowers at the top of the stalk. The variety generally has but a single bloom, and comes out very early in the season.

Heliotropium Curassavicum, L. This is a handsome bright green plant, with scorpioid terminal racemes of white flowers, the whole plant invariably turning black when dry. It is very common in damp or moist soil.

Phacelia ramossissima, Dougl., *P. tanacetifolia*, Benth. and *P. hispida*, are all closely related and often hard to distinguish from each other. The last can be known by its globular capsules and long calyx teeth. The flowers of all of them are blue or bluish, arranged in recurved one sided racemes, while the leaves are all dissected.

Eriodictyon tomentosum, Benth. A tall shrub with thick crenate very tomentose leaves. Flowers blue, in a loose spike. Another species of this genus, *E. glutinosum*, Benth., is called by the Mexicans "Mountain Balm" or "Yerba Santa," and is very much prized by them as a medicine. *E. tomentosum* is said to be an excellent remedy for bronchial troubles, and also for asthma. I have been told by several persons that it benefitted them greatly. The leaves are made into a sort of weak tea and the patient drinks it when he feels like it.

Nemophila insignis, Dougl. One of the prettiest of the wild flowers. It is a small low plant, with a bunch of bright blue or purple

flowers at the top of the stem, and with pinnatifid leaves at the base.

Nicotiana glauca. A small tree growing very plentifully in Los Angeles. The leaves are large, very smooth and glaucous. Branches of a light green, with small clusters of yellow, tubular flowers. It seems to blossom all the year round, and its favorite place of growth is on the banks of zanjas in cultivated or waste ground. Perhaps introduced. Not given in the Flora of California.

Datura meteloides, DC. A splendid species of the genus. The flowers are often eight inches in length and four or five in diameter. The corolla is of a creamy white, with quite an agreeable odor. The plant forms a small bush three or four feet high, and though regarded as a common weed, it is well worth the attention of gardeners.

Abromia maritima. A very handsome plant, growing in mats close to the ground. It is clammy pubescent all over, and the flowers are in close umbels, and of a bright purple. What makes it seem prettier than it otherwise would, is perhaps, the fact that it grows in barren sandy places, and the flowers contrast beautifully with the dry sand.

Platanus racemosa, Nutt., is the representative of the sycamore of the east. It has much the same habit of growth, and general appearance, but the leaves are three to five cleft instead of being toothed. The wood is so hard that it will often turn the edge of an ax or hatchet. It grows to be one of the largest trees of Southern California, and one in the yard of a brewery in Los Angeles must be between 30 and 50 feet in circumference. A specimen of *P. occidentalis* is mentioned in the GAZETTE for June which is 48 feet in circumference.

Quercus agrifolia, Nee, the Live Oak of California is the relative of *Q. virens*, the Live Oak of Florida. It is found in the canons of the mountains in the south and also all over the San Joaquin valley. The leaves are evergreen, coriaceous, and with sharp pointed serrations. It branches quite low down and in open ground like the San Joaquin valley, its top is rounded and symmetrical, forming a crown fit to grace the lawn of a nobleman. It grows very large. for I measured one which was 21 feet in diameter, 3 feet from the ground.

Anemopsis Californica, Nutt. A marsh plant, with ovate leaves, and flowers in a dense spike, with an involucre of white leaves. The Mexicans make a salve of the bruised leaves and use it to bring down the swelling of bruises and sprains.

Yucca Whipplei, Torr., is very handsome. The flower stem is often ten feet high and is covered for about one half its height with a dense mass of bell shaped white flowers. The leaves are long, serrulate, and with hard sharp points. When they get old they become frayed at the edges, hanging in long filaments on each side.

Calochortus splendens, Dougl., is well named. The flowers are large, open cup shaped, situated on long peduncles, and of a bright blue, the petals fringed on the inner side with numbers of yellow hairs. At a distance it is a very striking plant.

Polypodium Californicum, Kaulf., is similar to *P. vulgare*, L., but

of larger growth. Common in canons where there is plenty of shade and moisture.

Gymnogramme triangularis, Kaulf. Commonly known as "Gold backs," from the golden color of the spores. Grows in crevices of rocks and is a great favorite in cultivation.

Notholaena Newberryi. Gray. Sometimes called "Silver Fern," as it is very white and tomentose underneath. It grows from four to six inches high on the mountain side.

Adiantum emarginatum, Hook. Larger than *A. Capillus-Veneris*, L., and with the segments of the fronds not incised. Common in canons in damp places.

Woodwardia radicans, Smith. A very imposing fern growing from four to six feet high in large clumps. Common along streams in shady canons. — Jos. F. JAMES, *Cincinnati*.

"SYSTEMATIC FERN-LIST."—A classified list of the known ferns of the United States of America, by Daniel C. Eaton, New Haven, Conn. September 7, 1880. First edition.

This neat and timely "Fern-List," by the author of the "Ferns of North America," is most welcome, and will be warmly received by all fern students. The species and genera are arranged in tribes and the geographical range noted. All the recent additions, including *Notholæna nivea* (for which New Mexico should be added to the range) and *N. Lemmoni*, discovered since the completion of the two volumes of Ferns of North America, are given.

The List is designed for exchanges, and will not only serve its purpose admirably, but help to familiarize students with the changes in nomenclature adopted by the author in his fern book, although the necessity for some of them is certainly to be regretted.

It was so much easier, for example, to write *Ophioglossum bulbosum* than *O. crotalophoroides!* and then Michaux's name had become so well established, and was, withal, so exceedingly appropriate that it seemed a pity to disturb it. But the law of priority is inexorable, and we must write Walter's name whether we like it or not. It may not be out of place here to state that the recent collection of two very distinct forms of *Asplenium myriophyllum*, by Miss Reynolds, makes it almost certain that we shall have to recognize the presence of *Asplenium rhizophyllum*, Kunze in Florida, and reduce *myriophyllum* to the rank of a variety of that species with Hooker. I have the authority of Mr. Baker for saying that Miss Reynolds' two forms represent those two ferns as they have them in the Kew Herbarium, thus rendering this further change in our nomenclature probable.

Hooker here, as in the larger work referred to, is given as authority for *Aspidium spinulosum* var *dilatatum*, but it appears from some notes published in the Canadian Naturalist, by D. A. P. Watt, of Montreal, that *Aspidium dilatatum* was first reduced to a var. of *spinulosum* under *Polystichum* in "Hand-book i Skandinaviens Flora," p. 398, by Hartmann, and the name *Aspidium spinulosum* var. *dilata-*

tum first given by Hornemann in "Nomenclatura Floræ Danicæ," p. 33–1827. So that, if this be correct, the latter's name should stand as authority.

The List gives 151 species as recognized by the author; a remarkable increase in the number of species since the appearance of Mr. Edwards' Check List in 1874, but as one of these (*Cheilanthes argentea*) is doubtful, and the claim of *Phegopteris calcarea* to specific rank is a questionable one, the number of well established species might be reduced accordingly.

The author states in his "Note" that copies may be obtained of him at the price of ten cents for single copies, or one dollar for fifteen copies, or that it will be sent in exchange for good specimens of rare or interesting ferns.

The list is to be commended as being the best classified arrangement yet published, and as showing how exact and reliable our fern literature is becoming.—G. E. D.

WE NOTICE WITH PLEASURE that the corporation of Brown University has at last established a Botanical Professorship in compliance with the wish of the late Stephen F. Olney, who left $25,000 for this purpose. Until a competent Professor can be appointed, Mr. W. W. Bailey, who has been for some time instructing classes in Botany, has been appointed Instructor. We should think that the corporation might go farther and fare worse than to appoint Mr. Bailey Professor.

Mr. Olney's herbarium has been deposited in the Library building and will be hereafter known as "The Herbarium Olneyanum."

THE GAZETTE FOR 1881.—We would call attention to the advertisement printed on the last page of the cover. It is time now for the patrons of the GAZETTE to begin to use their friendly influence for the coming year. As our circulation is rapidly increasing it becomes more of an object for contributors to place in our hands whatever they desire to be read not only by the botanists of this country, but of Europe. Articles for the coming year should be under preparation and sent in as soon as possible that from a large assortment of material the selection for each number may be as varied as possible. Botanists' tastes do not all run in the same directions, and if any subscriber, looking over a number of the GAZETTE, comes to the conclusion that there is nothing in it to suit his fancy, he should feel it to be his duty to sit down and write something to his liking, for there will undoubtedly be other readers like himself. If this plan was adopted, every number would contain something of interest to every botanist. We would also call attention to our offer in regard to furnishing plates wherever such seem necessary to the proper understanding of any article. Of course the publication of such papers would be more or less delayed.